



Docket No.: 60,130-865

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2834
#21

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

~~APPLICANTS:~~ Breynaert EXAMINER: Cuevas, P.
~~SERIAL NO.:~~ 09/601,545 GROUP ART UNIT: 2834
~~FILED:~~ March 29, 2001
~~FOR:~~ Noise Suppression System for a Permanent-Magnet Motor for
Activating a Functional Device in a Motor Vehicle
~~ATTORNEY DOCKET NO:~~ 60,130-865

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APPEAL BRIEF

Dear Sir:

Subsequent to the filing of the Notice of Appeal on August 23, 2002, Appellant hereby submits its brief. Enclosed is a check for the appeal brief fee. Any additional fees or credits may be charged or applied to Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds.

Real Party in Interest

The real party in interest is Meritor Light Vehicle Systems - France, the assignee of the entire right and interest in this Application.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of Claims

Claims 1 and 4 stand finally rejected under 35 U.S.C. 102(b).

Claims 2-3 and 5-11 stand finally rejected under 35 U.S.C. 103(a).

Claims 8-11 stand finally rejected under 35 U.S.C. 112, second paragraph.

Claim 3 stands finally objected to as being of improper dependent form.

Status of the Amendments

The amendment dated July 19, 2002 in which claim 1 was amended to include the features of claim 5, claim 3 was amended to overcome claim objections, claim 8 was amended to overcome the 35 U.S.C. 112, rejection, and in which claim 5 was cancelled, has not been entered. All previous amendments have been entered.

Claims 1-11 in their current form are attached at Claim Appendix A. The proposed claim amendments that were not entered by the Examiner are attached at Claim Appendix B.

Summary of the Invention

The present invention relates to a noise suppression system for a permanent-magnet motor for activating a functional device in a motor vehicle.

Figure 1 shows the general structure of a permanent-magnet motor 1 for activating, for example, a functional device in a motor vehicle. This motor 1 has a metal casing 2, in which, permanent magnets 3 and a rotating part 4 are placed. The rotating part 4 is provided with a shaft 5 on which, a commutator 6 and other devices of conventional type 7, are placed. The commutator 6 is associated with supply brushes 8 and 9, which are connected by supply leads 10 and 11, to a power supply external to the motor 12. Page 2, paragraphs 9-11.

According to the invention, each supply brush 8 and 9, is connected to the metal casing 2 of the motor 1 through at least one noise suppression capacitor 13 and 14, and the metal casing 2 of the motor is connected to the vehicle's earth at 15, in any suitable manner, as will be described in greater detail below. Page 2, paragraph 12.

In fact, this makes it possible to form two noise suppression circuits essentially of the LC type of the brushes, in so far as the leads 10 and 11 have a certain intrinsic inductance. These leads may also be associate with specific inductors 16 an 17, or they may consist of a ferrite-loaded wires of conventional type, that is to say in which the conducting core of these wires is placed in a ferrite sheath, which is itself, surrounded by a layer of insulating material. Such a structure therefore makes it possible to match the characteristics of the LC circuits to the desired noise suppression characteristics. Page 3, paragraphs 13-15.

The metal casing 2 of the motor may, as described above, be connected to the vehicle's earth in any suitable manner. Thus, for example, this casing may be connected to the vehicle's earth through an earthing braid or a supporting piece of the functional device with which the motor is associated, etc. Thus, for example, the metal casing of the motor may be earthed by a piece for

fastening this motor to the rest of the functional device. For example, if the activating motor is a motor for activating a so-called motor-operated adjustable seat of a motor vehicle, the metal casing of the motor may be connected to the vehicle's earth through the slideway of the seat or other device.

Page 3, paragraphs 16-19.

Issues

Is the final rejection of claims 1 and 4 under 35 U.S.C. 102(b) proper over the reference of U.S. Patent No. 5,231,321 to Takiguchi?

Is the final rejection of claims 2-3 under 35 U.S.C. 103(a) proper over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,949,173 to Wille et al.?

Is the final rejection of claims 5-10 under 35 U.S.C. 103(a) proper over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,717,270 to Lau et al.?

Is the final rejection of claim 11 under 35 U.S.C. 103(a) proper over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,717,270 to Lau et al. and further in view of U.S. Patent No. 5,949,173 to Wille et al.?

Is the final rejection of claims 8-11 under 35 U.S.C. 112, second paragraph proper?

Is the final objection to claim 3 proper?

Grouping of Claims

A. 35 U.S.C. 102(b) Rejections

- A1. The rejection of independent claim 1 is contested.
- A2. The rejection of claim 4 is separately contested, i.e. claim 4 does not stand or fall with claim 1.

B. 35 U.S.C. 103(a) Rejections

- B1. The rejection of claim 2 is separately contested, i.e. claim 2 does not stand or fall with claim 1.
- B2. The rejection of claim 3 is separately contested, i.e. claim 3 does not stand or fall with claim 1.
- B3. The rejection of claim 5 is separately contested, i.e. claim 5 does not stand or fall with claim 1.
- B4. The rejection of independent claim 6 and associated dependent claim 7 is separately contested.
- B5. The rejection of claim 8 is separately contested, i.e. claim 8 does not stand or fall with claim 7.
- B6. The rejection of claim 9 is separately contested, i.e. claim 9 does not stand or fall with claim 7.

B7. The rejection of claim 10 is separately contested, i.e. claim 10 does not stand or fall with claim 9.

B8. The rejection of claim 11 is separately contested, i.e. claim 11 does not stand or fall with claim 9.

C. 35 U.S.C. 112, Second Paragraph, Rejections

D. Claim Objections

Patentability Arguments

A. 35 U.S.C. 102(b) Rejections

Claims 1 and 4 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,231,321 to Takiguchi.

A1. Claim 1

In an amendment after final dated July 19, 2002, Appellant proposed to add the features of dependent claim 5 to claim 1 (See Claim Appendix B). As indicated in the Advisory Action mailed on September 12, 2002, the amendment was not entered because it raised “new issues that would require further consideration and/or search.” In a continuation sheet of Advisory Action, the Examiner further commented that the amendment would not be entered because “since the addition of the term ‘separately’ [sic] in claim 1 overcomes the present grounds of rejection of this claim, the

examiner will need to further consider the prior art of record.” The Advisory Action also indicated that Appellant’s July 19, 2002, response overcame the 35 U.S.C. 102(b) rejections of claims 1 and 4.

First, as Appellant only added the features of claim 5 to claim 1 and cancelled claim 5, no new issues were raised that would require further consideration and/or search. The proposed amendment is equivalent to the cancellation of claim 1 and placing claim 5 in independent form, which Appellant did not do because this would also result in claims 2-4 being amended to change dependencies. Thus, no further consideration of the prior art of record is necessary by the Examiner, as the Examiner has already considered the prior art in light of claim 5.

Second, the Examiner has indicated in the Advisory Action that Appellant’s reply of July 19, 2002 has overcome the 35 U.S.C. 102(b) rejection. Claim 1 does not stand rejected under any other prior art. Thus, Appellant believes that Claim 1 is in condition for allowance.

A2. Claim 4

For the reasons, discussed above in Section A1, claim 4 should also be in condition for allowance as the Examiner has indicated in the Advisory Action that Appellant’s July 19, 2002 response overcame the 35 U.S.C. 102(b) rejections.

Further, claim 4 adds the feature that the means for earthing the casing of the motor comprise means for fastening this motor to the functional device. The Examiner argues that Figure 3 of Takiguchi shows a motor with means 100 (see Page 3 of May 23, 2002 final rejection) for earthing the casing to the functional device. Figure 3, simply shows the motor 1 being mounted to a bracket with no indication of a functional device. There is no disclosure of earthing the casing by fastening the motor to

the functional device as claimed by Appellant in claim 4. Thus, claim 4 is not anticipated by Takiguchi and Appellant respectfully requests that the rejection of claim 4 under 35 U.S.C. 102(b) be withdrawn.

B. 35 U.S.C. 103(a) Rejections

Claims 2 and 3 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,949,173 to Wille et al. Claims 5-10 stand rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,717,270 to Lau et al. Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of U.S. Patent No. 5,231,321 to Takiguchi in view of U.S. Patent No. 5,717,270 to Lau et al. and further in view of U.S. Patent No. 5,949,173 to Wille et al. Each of these claims and associated rejections will be discussed separately below.

B1. Claim 2

Claim 2 includes the feature of the supply leads (10, 11) being associated with inductors (16, 17). The Examiner does not indicate how the combination of Takiguchi and Wille discloses, suggests, or teaches the supply leads being associated with inductors. The Examiner only discussed the combination in view of ferrite-loaded wires. See Page 4, item 10 of May 23, 2002, final rejection. Thus, Appellant believes that claim 2 is allowable over the prior art.

B2. Claim 3

Claim 3 in its current form also includes the feature that the supply leads (10, 11) are associated with inductors (16, 17). As discussed above in Section B1, the Examiner does not discuss this feature in light of the combination of Takiguchi and Wille.

Appellant proposed an amendment to claim 3 (see Claim Appendix B) to include the feature of the supply leads (10, 11) being formed by ferrite-loaded wires, which corrected an error made during a previous amendment, which removed the multiple dependency of claim 3. This amendment has not been entered, thus the Examiner's rejection discussed at Page 4, item 10 of May 23, 2002, final rejection, is not relevant to claim 3 in its current form.

However, assuming that claim 3 does include the feature of ferrite-loaded wires for the supply leads, the combination of Takiguchi and Wille does not disclose, suggest, or teach this feature. The Examiner admits that Takiguchi does not disclose the feature and argues that it would be obvious to use ferrite core choke coils on a motor for the purpose of connecting the brushes and the respective current bus bar. In order to modify a reference there must be some motivation or suggestion to do so. There is no indication in Takiguchi, and the Examiner has not indicated, that the brush connection method disclosed in Takiguchi is in any way deficient for Takiguchi's purposes or that there would be any benefit provided by modifying Takiguchi with Wille.

Further, the Examiner argues that Wille teaches the use of ferrite core choke coils for connecting a brush to the bus bar. There is no teaching in Wille or Takiguchi of forming the supply leads themselves from ferrite-loaded wires as claimed by Appellant.

Thus, Appellant believes that the rejection under 35 U.S.C. 103(a) is improper and respectfully requests that the rejection be withdrawn.

B3. Claim 5

Claim 5 includes the feature that each of the brushes is separately connected to the casing by at least one noise suppression capacitor. The Examiner admits that Takiguchi does not disclose this feature and argues that the teachings of Lau can be used in combination with Takiguchi to achieve this feature.

First, Lau does not disclose, suggest, or teach separately connecting each brush to a motor casing. Lau teaches a motor where each commutator segment 32 is connected to the casing with a capacitor 44 (see Fig. 3). The capacitors in Lau do not separately connect each brush to the casing as claimed by Appellant.

Second, even if Lau did teach to separately connect each brush to the motor casing, there is no motivation or suggestion to modify Takiguchi with Lau. One of the benefits of the Takiguchi motor is that the noise preventing circuit is designed to be easily incorporated inside the motor to achieve better performance without requiring significant redesign of the motor, see col. 1, lines 26-68. Takiguchi utilizes choke coils 6, 7, and pigtails 34, 35 to connect each brush 26, 27 to a common capacitor 8 mounted inside the motor housing 3 to an end plate 4. To modify Takiguchi to utilize additional capacitors inside the motor (admitted in Lau to be of significant size at col. 1, line 39) would add additional components inside the motor making packaging more difficult and increasing motor casing size. Thus, the modification would destroy the benefit of the design achieved by Takiguchi. It is

improper to modify a base reference in a manner that destroys the benefits of the base reference, thus Appellant believes the rejection under 35 U.S.C. 103(a) is improper and respectfully requests that the rejection be withdrawn.

B4. Claims 6 and 7

Independent claim 6 is directed toward a noise suppression system for a motor having a casing, a shaft rotatable relative to the casing having an output for activating a vehicle functional device, a plurality of brushes supported by the shaft and connected to a power supply external to the casing, and a plurality of capacitors with at least one of the capacitors separately connecting each of the brushes to the casing for suppressing noise.

The Examiner argues that it would have been obvious to use the separately connected capacitors, brushes and shaft disclosed by Lau on the noise suppression system disclosed by Takiguchi “for the purpose of maintaining a minimum length of the commutator/rotor.” As discussed above, Lau does not disclose, suggest, or teach separately connecting each brush to a motor casing. Lau teaches a motor where each commutator segment 32 is connected to the casing with a capacitor 44 (see Fig. 3). Thus, Lau does not disclose a plurality of capacitors with at least one of the capacitors separately connecting each of the brushes to the casing for suppressing noise as claimed by Appellant in claim 6.

Second, for the reasons discussed above in Section B3, there is no motivation or suggestion to modify Takiguchi with Lau. The Examiner argues that to modify Takiguchi with the teachings of Lau would maintain a minimum length of the commutator/rotor. However, the Examiner’s modification would require additional capacitors to be used in Takiguchi, which would result in an increase in size of

the Takiguchi motor as Lau teaches that the capacitors are large in size. Thus, Appellant believes the rejection under 35 U.S.C. 103(a) is improper and respectfully requests that the rejection be withdrawn.

B5. Claim 8

Claim 8 includes the feature of the casing being grounded via connection to the vehicle functional device. The Examiner argues that Figure 3 of Takiguchi shows a motor with means 100 (see Page 3 of May 23, 2002 final rejection) for grounding the casing to the functional device. Figure 3, simply shows the motor 1 being mounted to a bracket with no indication of a functional device. There is no disclosure of grounding the casing by a connection of the motor to the functional device as claimed by Appellant in claim 8.

B6. Claim 9

Claim 9 includes the feature of each of the brushes being connected to the power supply with a supply lead forming a plurality of noise suppression circuits. As discussed above, Lau does not disclose, suggest, or teach separately connecting each brush to a motor casing. Lau further does not disclose this feature in combination with each of the brushes being connected to the power supply to form a plurality of noise suppression circuits. The Examiner argues that this feature is shown in Figure 4 of Lau, however, there is no showing in Figure 4 for each brush being connected to the power supply with a supply lead. Figures 3 and 4 show noise suppression device 40 that includes a non-conductive board 41 supporting a conductive layer 42 having a plurality of fingers 43. The capacitors 44 are soldered to the fingers 43. Thus, there is no teaching in Lau of separately connecting each the brushes

to the casing with a capacitor and connecting each of the brushes to the power supply with a supply lead as claimed by Appellant.

Finally, for the reasons discussed above in Section B3, there is no motivation or suggestion to modify Takiguchi with Lau. Thus, the rejection under 35 U.S.C. 103(a) is improper and should be withdrawn.

B7. Claim 10

Claim 10 is dependent from claim 9 and further includes the feature of a plurality of inductors with at least one inductor being associated with each of the supply leads. The Examiner provides no argument in his rejection as to where this combination of features is shown or taught by the combination of Takiguchi and Lau.

As discussed above in Section B6, Lau does not disclose, suggest, or teach separately connecting each brush to a motor casing and does not disclose each of the brushes being connected to the power supply with a supply lead to form a plurality of noise suppression circuits. Lau further does not disclose this feature in combination with a plurality of inductors with at least one inductor being associated with each of the supply leads. Finally, for the reasons discussed above in Section B3, there is no motivation or suggestion to modify Takiguchi with Lau. Thus, the rejection under 35 U.S.C. 103(a) is improper and should be withdrawn.

B8. Claim 11

Claim 11 is dependent from claim 9 and includes the additional feature of the each of the supply leads being formed by ferrite-loaded wires. The Examiner admits that Takiguchi and Lau do not teach this feature and relies on Wille to teach this feature.

The Examiner argues that it would be obvious to use ferrite core choke coils of Wille on a motor for the purpose of connecting the brushes and the respective current bus bar in Takiguchi. In order to modify a reference there must be some motivation or suggestion to do so. There is no indication in Takiguchi, and the Examiner has not indicated, that the brush connection method disclosed in Takiguchi is in any way deficient for Takiguchi's purposes or that there would be any benefit provided by modifying Takiguchi with Wille. Further, for the reasons discussed above in Section B3, there is no motivation or suggestion to modify Takiguchi with Lau.

Finally, the Examiner argues that Wille teaches the use of ferrite core choke coils for connecting a brush to the bus bar. There is no teaching in Wille or Takiguchi of forming the supply leads themselves from ferrite-loaded wires as claimed by Appellant.

Thus, Appellant believes that the rejection under 35 U.S.C. 103(a) is improper and respectfully requests that the rejection be withdrawn.

C. 35 U.S.C. 112, Second Paragraph, Rejections

Claims 8-11 stand rejected under 35 U.S.C. 112, second paragraph. Specifically claim 8 is rejected as having insufficient antecedent basis for the term "vehicle function device." Appellant proposed an amendment to claim 8 to change "function" to "functional" (see Claim Appendix B),

however, the Examiner has not entered the proposed amendment. Appellant is still willing to make this amendment to overcome the 35 U.S.C. 112, second paragraph, rejection.

D. Claim Objections

Claim 3 stands objected to as being of improper dependent form. Claim 3 was proposed to be amended (see Claim Appendix B) to include the claim language as originally filed, i.e., “that the supply leads (10, 11) are formed by ferrite-loaded wires,” as addressed in examiner’s response to arguments (see Page 6, item 16 in the May 23, 2002 final rejection). In Appellant’s February 21, 2002 amendment, Appellant inadvertently labeled claim 2 as claim 3 when claim 3 was amended to remove the multiple dependencies. Appellant is still willing to make this amendment to overcome the claim objection.

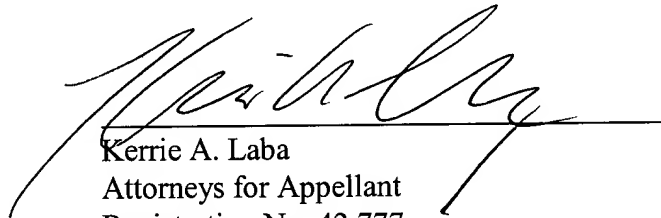
Closing

For the reasons set forth above, the rejection of all claims is improper and should be reversed.

Appellant earnestly requests such an action.

Respectfully submitted,

CARLSON, GASKEY & OLDS

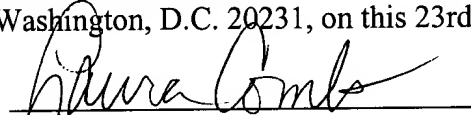


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Dated: October 23, 2002

CERTIFICATE OF MAILING

I hereby certify that the attached Appeal Brief is being deposited in triplicate with the United States Postal Service as first class mail, postage prepaid, in an envelope addressed to Box AF, Assistant Commissioner of Patents, Washington, D.C. 20231, on this 23rd day of October, 2002. ✓


Laura Combs

CLAIM APPENDIX A

1. Noise suppression system for a permanent-magnet motor for activating a functional device in a motor vehicle, in which the motor (1) includes supply brushes (8, 9) connected to an external power supply (12) by leads (10, 11) and a metal casing (2), characterized in that each brush (8, 9) is connected to the metal casing (2) of the motor (1) through at least one noise suppression capacitor (13, 14), in that the metal casing (2) of the motor (1) is connected to the vehicle's earth (at 15) and in that the metal casing (2) of the motor and the functional device have complementary means for earthing the casing.
2. System according to Claim 1, characterized in that the supply leads (10, 11) are associated with inductors (16, 17).
3. System according to Claim 1, characterized in that the supply leads (10, 11) are associated with inductors (16, 17).
4. System according to Claim 1, characterized in that the means for earthing the casing of the motor comprise means for fastening this motor to the functional device.
5. A system according to claim 1 wherein each of said brushes is separately connected to said casing by at least one noise suppression capacitor.

6. A noise suppression system for a motor comprising:
 - a casing;
 - a shaft rotatable relative to said casing having an output for activating a vehicle functional device;
 - a plurality of brushes supported by said shaft and connected to a power supply external to said casing; and
 - a plurality of capacitors with at least one of said capacitors separately connecting each of said brushes to said casing for suppressing noise.
7. A system according to claim 6 wherein said casing is grounded.
8. A system according to claim 7 wherein said casing is grounded via connection to said vehicle function device.
9. A system according to claim 7 wherein each of said brushes is connected to said power supply with a supply lead forming a plurality of noise suppression circuits.
10. A system according to claim 9 including a plurality of inductors with at least one inductor being associated with each of said supply leads.

11. A system according to claim 9 wherein each of said supply leads are formed by ferrite-loaded wires.

CLAIM APPENDIX B

Proposed claim amendments submitted on July 19, 2002 but not entered by the Examiner.

The proposed amendments were as follows: Claim 1 was amended to include the features of claim 5; Claim 5 was cancelled; Claim 3 was amended to overcome the claim objections; and Claim 8 was amended to overcome the 35 U.S.C. 112, second paragraph, rejections.

1. (Proposed Amendment) Noise suppression system for a permanent-magnet motor for activating a functional device in a motor vehicle, in which the motor (1) includes supply brushes (8, 9) connected to an external power supply (12) by leads (10, 11) and a metal casing (2), characterized in that each brush (8, 9) is separately connected to the metal casing (2) of the motor (1) [through] by at least one noise suppression capacitor (13, 14), in that the metal casing (2) of the motor (1) is connected to the vehicle's earth (at 15) and in that the metal casing (2) of the motor and the functional device have complementary means for earthing the casing.

3. (Proposed Amendment) System according to Claim 1, characterized in that the supply leads (10, 11) are [associated with inductors (16, 17)] formed by ferrite-loaded wires.

8. (Proposed Amendment) A system according to claim 7 wherein said casing is grounded via connection to said vehicle [function] functional device.